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Author (if known): McGavin

Article Title: "A Modified Aerosol Inhaler for Teaching Technique"

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Journal or Book Title: *The Lancet*, vol. 2 no. 7997, pp. 1227

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I became aware of this article since it was cited as prior art in US Patent No. 4,291,688.

COMPLETED

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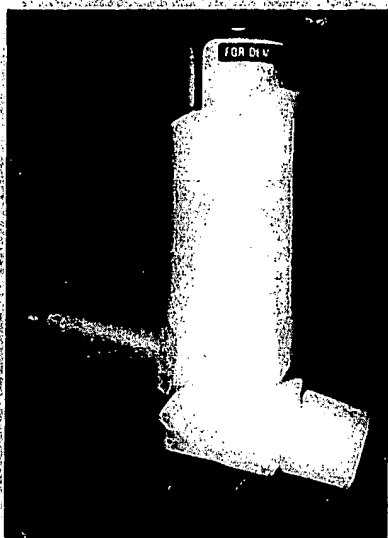
A MODIFIED AEROSOL INHALER FOR TEACHING TECHNIQUE

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MANY patients with airways obstruction are denied the benefit of aerosols either because they have difficulty in mastering the inhaler technique, or because they have received inadequate instruction on their use. I have devised a simple modification to the standard aerosol which simplifies instruction and reduces teaching time.

The modification consists of incorporating a plastic toy "siren" into the aerosol jacket. The siren emits a whizzing noise when air is sucked through it in one direction but does not produce any sound when the direction of flow is reversed. The aerosol jacket is modified in a few minutes as follows. A



Modified aerosol inhaler.

hole 10 mm in diameter is bored with a heated metal rod in the plastic aerosol jacket at the level of the internal pinnacle. The siren may be shortened to about 30 mm for convenience, and the open end is warmed until malleable. It is then moulded by gentle pressure to conform to the contours of the jacket, and glued in position when cool. Finally, the air channel between the inhaler canister and jacket is partly obstructed with self-adhesive foam rubber so that the inspired air is diverted to the siren. The completed instrument is shown in the accompanying figure. Air drawn through the mouthpiece produces a noise, the length and volume of which reflect the depth and speed of inspiration. The patient quickly learns to take a deep, rapid breath through the mouthpiece and can then be taught to operate the canister when airflow is under way. Once acquired, the skill can be transferred to using the standard inhaler with further instruction about keeping the lips tightly or loosely closed around the mouthpiece.

In addition to its use for patient education, the instrument is helpful in the respiratory laboratory, for example when carrying out tests of airway reversibility. In this case the technician operates the canister when he can hear that the satisfactory inspiration is occurring. Similarly, in wards in which nurses administer inhaled aerosols, the instrument may aid drug administration.

A limited supply of sirens may be available on application to C. R. McG.

Reviews of Books

Acute Diarrhoea in Childhood

Ciba Foundation Symposium 42. Edited by K. ELLIOTT and J. KNIGHT. Amsterdam: Associated Scientific Publishers, New York: Elsevier. 1976. Pp. 375. D.fl.70.\$26.95.

"During 1975, 500 million episodes of diarrhoea were likely to occur among the babies and small children of Asia, Africa and Latin America; and the disease would kill between five and eight million of them." This is the opening sentence of the preface to this book which analyses the problems and advances in the understanding of acute infectious diarrhoea in childhood. This provided the subject of a Ciba Foundation symposium in October, 1975, which brought together 28 research-workers, 17 of whom presented the papers which form the basis of this book. Contributions were provided by both medical and veterinary workers, some of whom were essentially laboratory workers, while others had extensive clinical experience, particularly in the developing countries. In this way, the complex interplay of biochemical, microbiological, immunological and sociological factors involved in the problem of acute diarrhoeal disease in childhood was critically assessed. The discussion sessions are well edited and provide stimulating and often entertaining reading. Any reader who is confused by the torrent of publications on the role of newly described viruses in enteritis could do no better than to read the contributions, medical and veterinary, on this subject. He would soon realise that the human reovirus-like agents (rotaviruses) would have been detected sooner if only medical scientists had been more aware of what their veterinary colleagues were doing. The last chapter on Taking Science Where the Diarrhoea Is, by Dr Eliot Rohde and Dr Robert S. Northrup from the Rockefeller Foundation, Yogyakarta, deserves special mention, since their work shows that lessons learned at the laboratory bench can influence the course of diarrhoeal disease in village communities in the developing world and, conversely, that problems in the field can usefully influence the direction of laboratory research. Although the symposium was held over a year ago contributors have added a number of useful 1976 references in the text. This book is of interest to virologists, bacteriologists, immunologists and paediatricians, who have an interest in gastroenterology or health problems in the developing world.

Clinical Management of the Osteoporoses

GILBERT S. GORDAN, M.D., and CYNTHIA VAUGHAN, R.N. Acton, Massachusetts: Publishing Science Group. 1976. Pp. 207. \$18.

THE number of methods used to study osteoporosis is almost equalled by the alleged treatments for the disease. Osteoporosis has been quantitated by a dozen radiographic indices, by photon beams, by histiometry; it has been studied by metabolic balances and by isotopic tracers; and all has then been correlated with measurements of parathyroid hormone, vitamin D, calcitonin, collagen, and hydroxyproline metabolism. Recommended treatments include mineral supplements alone or with the calcium-regulating hormones, with other vitamins, mineral analogues such as the diphosphonates, and with growth hormone, androgens, oestrogens, or anabolic steroids. A considerable achievement in this book is a remarkably up-to-date bibliography of approximately 800 references. This book is also important for two simple clinical messages—the importance of accurate serial height measurements in patients with osteoporosis and the emphasis that treatment can only be judged by its prevention of further crush fractures. Unfortunately, some of the authors' other biochemical and clinical beliefs are more controversial. They regard plasma-calcium as maintained primarily by parathyroid-hormone-induced stimulation of bone